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EXAMINER	
ABDI, AMARA	
ART UNIT	**PAPER NUMBER**
2609	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/763,645	GHOSH ET AL.	
	Examiner	Art Unit	
	Amara Abdi	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 January 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/22/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: **130** was mention in the specification on page 2, line 22, and was not shown in the drawing of **figure 1**.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "**502**" has been used to designate both the **surface array** and **target molecule**. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each

drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: **1902** in figure **19** is not mentioned in the specification.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The specification is objected to because of the following informalities:

On page 20, line 7, the examiner suggest rewriting the formula correctly and clearly visible.

Claim Objections

5. Claims 3-8,10-13,16, and 18-20 are objected to because of the following informalities:

(1) Claim 3, line 16-17, "**a** feature" should be changed to "**the** feature", and the same informality was found in **claim 6**, lines 15 and 16, **claim 7**, line 27, **claim 10**, line 10, **claim 16**, line 18, and **claim 18**, lines12 and 13; also on line 17, "**a** background" should be changed to "**the** background", and the same informality was found in **claim 6**, line 16, and **claim 18**, line 13

(2) Claim 4, line 24, "**a** low" should be changed to "**the** low"; and the same informality was found in **claim 17**, line 25;

(3) Claim 5, line 3, the examiner suggests deleting "**the**" before continuity;

(4) Claim 6, line 10, the examiner suggest moving the line 9 to the line 8 for clarification;

(5) Claim 11, line 14, "**a** region' should be changed to "**the** region";

(6) Claim 18, line 8, the examiner suggest moving the line 9 to the line 8 for clarification.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 10-13 are rejected under 35 U.S.C 101 because the claimed inventions are directed to non-statutory subject matter.

(1) Claims 10,12, and 13 are directed entirely to the various set of data and do not define any functional interrelationships between any of the data elements that make up the "database".

Consequently, the claims merely define the data per se, and do not define functional description material capable of imparting useful functionality to a general-purpose computer or derive.

(2) In claim 11, a "**feature extraction program**" is being recited; however, feature extraction program would reasonably be interpreted by one of ordinary skill in the art as software, pre se. This subject matter is not limited to that which falls within a statutory category of invention because it is limited to a process, machine, manufacture, or a composition of matter. Software is a function descriptive material and function descriptive material is non-statutory subject matter.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim (US-PGPUB 2004/0017579) in view of Mittal et al. (US-PGPUB 2005/0286764).

(1) Regarding claim 1:

Lim disclose a method for classifying pixels (paragraph [0012], line 4-6), the method comprising:

Initially classifying pixels in the region of interest as either feature pixels or background pixels based on the intensities of the pixels (paragraph [paragraph [0053], line 2-4, and paragraph [0054], line 1-6)

However, Lim does not disclose the computing of probabilities for the pixels that the pixels are feature pixels or background pixels as recited in claim 1.

Mittal et al. teaches a method for scene modeling and change detection, where computing the probability of the pixels to estimate either the pixels are feature or background (paragraph [0019], line 9-13), (the examiner interpreted that the pixels are estimated as feature pixels or background pixels based on the comparison with the threshold)

One of ordinary skill in the art would have clearly recognized the computing of the probability to estimate if the pixels are feature or background (paragraph [0019], line 6-13). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Mittal et al., where computing the probability for the pixels as they are either feature or background, in the system of Lim, because such

feature is utilizing the optical flow measurements for capturing and modeling the dynamic of the scene, and combining the optical flow measurements, the intensities and the probability distribution so as to develop a robust representation of the scene in a higher dimensional space (paragraph [0024], line 8-12).

(2) Regarding claim 2:

Lim further discloses the method, where a feature pixel and background pixels classification is stored in a feature mask (paragraph [0044], line 15-19; and paragraph [0054], line 3), (the examiner interpreted that the history information storage is part of the mask).

(3) Regarding claim 3:

Lim disclose all the subject matter as described in claim 2 above.

However, Lim does not disclose the method, where the feature mask includes binary values, where the first binary value indicating that corresponding pixels is a feature pixel and a second binary value indicating that a corresponding pixels is a background pixel as recited in claim 3.

Mittal et al. teaches a method for scene modeling and change detection, where the difference between the present frame (feature pixel) and background pixel is the binary mask (paragraph [0118], line 2-6).

One of ordinary skill in the art would have clearly recognized the method, where the feature mask includes binary values, where the first binary value indicating that corresponding pixels is a feature pixel and a second binary value indicating that a corresponding pixels is a background pixel (paragraph [0118], line 1-6). Therefore it

would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Mittal et al., where the feature mask includes binary value, in the system of Lim, because in such feature the uncertainties in the measurements are evaluated and utilized to develop a robust representation of the scene in a higher dimensional space. Such representation can be built efficiently in a nonparametric manner within a window of past observation. A new observation can be then be compared with this representation in order to detect changes (paragraph [0017], line 8-13).

(4) Regarding claim 4:

Lim disclose all the subject matter as described in claim 1 above.

However, Lim does not disclose the method, where determining a higher pixel intensity and lower pixel intensity, and determining an intermediate point between the higher pixel intensity and lower pixel intensity, and classifying pixels intensities greater than or equal to the intermediate point as feature pixels and classifying pixels with pixels intensity less than the intermediate point as background pixels, and iteratively reclassifying pixels based on an intermediate intensity between the mean intensity of feature pixels and the mean intensity of background pixels as recited in claim 4.

Mittal et al. teaches a method for scene modeling and change detection, where the statistical method utilizes optical flow for capturing the dynamic of the scene. Along with optical flow, the intensity of a pixel is considered in an illumination-invariant space (paragraph [0017], line 2-5), and classifying the pixels based on the value of threshold (paragraph [0019], line 11-13), and iteratively reclassifying pixels based on the value of

the threshold (paragraph [0019], line 9-13), (the examiner interpreted that the reclassification is the same concept as classification that was described in claim 1).

One of ordinary skill in the art would have clearly recognized the method, where a higher pixel intensity and lower pixel intensity, and determining an intermediate point between the higher pixel intensity and lower pixel intensity (paragraph [0017], line 2-5), and classifying pixels intensities greater than or equal to the intermediate point as feature pixels and classifying pixels with pixels intensity less than the intermediate point as background pixels (paragraph [0019], line 11-13), and iteratively reclassifying pixels based on an intermediate intensity between the mean intensity of feature pixels and the mean intensity of background pixels (paragraph [0019], line 9-13). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Mittal et al., where determining the intensity of pixel, in the system of Lim, because in such feature the uncertainties in the measurements are evaluated and utilized to develop a robust representation of the scene in a higher dimensional space. Such representation can be built efficiently in a nonparametric manner within a window of past observation. A new observation can be then be compared with this representation in order to detect changes (paragraph [0017], line 8-13).

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lim and Mittal et al., as applied to claim 1 above, and further in view of Lee et al. (US-PGPUB 2004/0202368).

Lim and Mittal et al. disclose all the subject matter as described in claim 1 above.

However, Lim and Mittal et al. does not disclose the identifying of hole pixels that are feature pixels surrounded by background pixels and background pixels surrounded by feature pixels and reclassifying hole pixels in order to increase the continuity of feature-pixel and background pixel classification with respect to location within the region of interest as recited in claim 5.

Lee et al. teaches a learnable object segmentation, where detecting the hole pixels as feature pixels surrounded by background pixels and background pixels surrounded by feature pixels (paragraph [0084], line 2-8), (the examiner interpreted that some of feature pixels are within the boundary, and some of the them outside the region of interest, and the same thing applies to the background pixels). And reclassifying the hole pixels in order to increase the continuity of feature-pixel and background pixel classification with respect to location within the region of interest (paragraph [0121], line 3-11; and paragraph [0123], line 3-6), (the examiner interpreted the increasing of the continuity of feature-pixel and background pixel classification by filling the holes to remove extraneous pixels and smooth region boundaries).

One of ordinary skill in the art would have clearly recognized the detecting of the hole pixels as feature pixels surrounded by background pixels and background pixels surrounded by feature pixels (paragraph [0084], line 2-8), and reclassifying the hole pixels in order to increase the continuity of feature-pixel and background pixel classification with respect to location within the region of interest (paragraph [0116], line 5-8; and paragraph [0123], line 1-6). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Lee et al.,

where detecting the hole pixels that are feature pixels and background pixels, in the system of Lim, because such feature provides an accurate and robust method for object segmentation on complicated object types, as well as providing a semi-automatic method for user to train the segmentation recipe (paragraph [0010], line 2-6).

11. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim and Mittal et al., as applied to claim 1 above, and further in view of Bow et al. (STIC), (Pattern recognition and image preprocessing [electronic resource]).

(1) Regarding claim 6:

Lim and Mittal et al. disclose all the subject matter as described in claim 1 above.

However, Lim and Mittal et al. do not disclose the method, where classifying the pixel as feature when P(F/I,x)>=P(B/I,x); until a maximum number of iterations are performed as recited in claim 6.

Bow, sing-Tze teaches Pattern recognition and image preprocessing, where using Bayes discriminant function for given probability function that the state nature is a pattern belonging to certain class (the examiner interpreted that P(wi/x) has the same concept as P(F/I,x) and P(B/I,x)) (Page 85, line 16-22). Also classifying a pixel as a feature pixel when {P(x/wk)P(wk)> P(x/wi)P(wi)} (Page 87, line 21-24), (the examiner interpreted that P(F/I,x)= P(x/wk)P(wk), and P(B/I,x)= P(x/wi)P(wi)), until a maximum number of iterations are performed (Page 88, line 7-10).

One of ordinary skill in the art would have clearly recognized the method, where classifying a pixel as a feature pixel when (Page 87, line 21-24), (the examiner

interpreted that P(F/I,x)= P(x/wk)P(wk), and P(B/I,x)= P(x/wi)P(wi)), until a maximum number of iterations are performed (Page 88, line 7-10). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Bow, sing-Tze, where iteratively computing probabilities of pixels, in the system of Lim, because such feature can speed up the processing of an image, it is therefore necessary to explore a way to accurately represent the image with much less amount of data but without losing any important information for the interpretation (Page 10, line 31-35).

(2) Regarding claim 7:

Lim and Mittal et al. disclose all the subject matter as described in claim 6 above.

However, Lim and Mittal et al. do not disclose the method, where the Bayesian posterior probability P(F/I,x) is calculated as: P(F/I,x)=P(F,I,x)/P(I/x)={P(i/x,F)*P(F,x)}/P(I,x)= { P(i/x,F)*P(F/x)}/P(x)}/P(I,x)

and where the Bayesian posterior probability P(B/I,x) is calculated as:

P(B/I,x)=P(B,I,x)/P(I/x)={P(i/x,B)*P(B,x)}/P(I,x)= { P(i/x,B)*P(B/x)}/P(x)}/P(I,x), where the pixel is classified as a feature pixel where : P(F/I,x)/ P(B/I,x)>=1 as recited in claim 7.

Bow, sing-Tze teaches Pattern recognition and image preprocessing, where the Baye's discriminant function is written as: P(wi/x)={P(x/wi)*P(wi)}/ P(x) (Page 85, line 16), (the examiner interpreted that P(wi/x) has the same concept as P(F/I,x) and P(B/I,x)), and {P(x/wk)P(wk)> P(x/wi)P(wi)}, where : P(F/I,x)= P(x/wk)P(wk), and P(B/I,x)= P(x/wi)P(wi) (Page 87, line 21-24).

One of ordinary skill in the art would have clearly recognized the method, where the Baye's discriminant function is written as: P(wi/x)={P(x/wi)*P(wi)}/ P(x) (Page 85, line 16), and {P(x/wk)P(wk)> P(x/wi)P(wi)}, where : P(F/I,x)= P(x/wk)P(wk), and P(B/I,x)= P(x/wi)P(wi) (Page 87, line 21-24). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Bow et al., where iteratively computing probabilities of pixels, in the system of Lim, because such feature can speed up the processing of an image, it is therefore necessary to explore a way to accurately represent the image with much less amount of data but without losing any important information for the interpretation (Page 10, line 31-35).

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lim, Mittal et al., and Bow, sing-Tze (STIC), as applied to claim 7 above, and further in view of Padilla et al. (US-PGPUB 2003/0233197).

Lim, Mittal et al., and Bow et al. disclose all the subject matter as described in claim 7 above.

However, over Lim, Mittal et al., and Bow et al. do not disclose the method, where Bayesian posterior probabilities are calculated for each channel of a two-channel microarray as recited in claim 8.

Padilla et al. teaches a discrete Bayesian analysis of data, where using microarray to contain a human genes including intensities (paragraph [0312], line 10-13), and a series of channel grooves, or spots are formed on substrate and reagents are selectively flowed through the channels (paragraph [0085], line 15-18).

One of ordinary skill in the art would have clearly recognized the method, where Bayesian posterior probabilities are calculated for each channel of a two-channel microarray (paragraph [0312], line 10-13; and (paragraph [0085], line 15-18). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Padilla et al., where Bayesian posterior probabilities are calculated for each channel of a two-channel microarray, in the system of Lim, because such feature can be used to predict outcomes of other conditions or perturbations or to identify conditions or perturbations, for diagnosis or for other predictive analysis (paragraph [0008], line 11-13), as well as providing an indication of whether a new data item belongs to a given model of clinically relevant information (paragraph [0009], line 4-5).

8. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim and Mittal et al., as applied to claim 1 above, and further in view of Gelenbe et al. (US 5,995,651).

(1) Regarding claim 9:

Lim and Mittal et al. disclose all the subject matter as described in claim 1 above.

However, Lim and Mittal et al. do not disclose a computer instructions encoded in a computer-readable medium that implements the method of claim 1 as recited in claim 9.

Gelenbe et al. teaches an image content classification method, system and computer program using texture patterns, where a computer program is used to implement the method (column 1, line 60)

One of ordinary skill in the art would have clearly recognized the method, where the computer program is implement the method of claim 1 (column 1, line 7). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Gelenbe et al., where the method is implemented in a computer program, in the system of Lim, because such feature provides method and computer programs which are highly accurate which may operate at high speeds, so that large volumes of images data may be processed (column 1, line 62,63; and line 66-67).

(2) Regarding claim 11:

Lim and Mittal et al. disclose all the subject matter as described in claim 1 above. Lim disclose a feature extraction (paragraph [0044], line 22).
Furthermore, Mittal et al. a feature location (paragraph [0093], line 2-4) and size determination step (paragraph [0081], line 3-6) that includes the method for classifying pixels (paragraph [0011], line 5-7) with observed intensities within the region of interest of claim 1 (paragraph [0017], line 3-5).

However, Lim and Mittal et al. do not disclose a feature extraction program as recited in claim 11.

Gelenbe et al. teaches an image content classification method, system and computer program using texture patterns, where a computer program is used in the system (column 1, line 60).

One of ordinary skill in the art would have clearly recognized the method, where the computer program is used in the system (column 1, line 7). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Gelenbe et al., where a computer program is used, in the system of Lim, because such feature provides method and computer programs which are highly accurate which may operate at high speeds, so that large volumes of images data may be processed (column 1, line 62,63; and line 66-67).

13. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lim and Mittal et al., as applied to claim 1 above, and further in view Kondo (US-PGPUB 2004/0234160).

Lim and Mittal et al. disclose all the subject matter as described in claim 1 above.

However, Lim and Mittal et al. do not disclose a data structure carried out by the method of claim 1 stored in a computer-readable medium.

Kondo teaches a data converting apparatus and data converting method, learning device and learning method, and recording medium, where a data structure is stored in a computer-readable medium (paragraph [0103], line 2-6)

One of ordinary skill in the art would have clearly recognized the method, where the data structure is stored in a computer-readable medium (paragraph [0103], line 1-10). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Kondo, where the data structure is stored in a computer-readable medium, in the system of Lim, because such feature converts image

data into higher quality image data, and enable a user to adjust the image quality of the image data (paragraph [0042], line 2-4).

10. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim, Mittal et al., and Gelenbe et al. as applied to claim 11 above, and further in view of Belkin et al. (US 6,738,087).

(1) Regarding claim 12:

Lim, Mittal et al., and Gelenbe et al. disclose all the subject matter as described in claim 11 above.

However, Lim, Mittal et al., and Gelenbe et al. do not disclose transferring the data produced by the feature extraction program to a remote location as recited in claim 12.

Belkin et al. teaches a method and system for transferring live video pictures from a video camera to a remote video displayer via conventional telephone line, where storing each data block in a memory means, and successively transferring its address code information to a remote video-display system (column 2, line 31-37) (the examiner interpreted the remote video-display as the remote location).

One of ordinary skill in the art would have clearly recognized the transferring of the data produced by the feature extraction program to a remote location (column 2, line 28-37). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Belkin et al, where transferring the data to the remote location, in the system of Lim, because such feature is useful for transferring

live video data through low-bandwidth communication lines (column 2, line 21-23) and especially useful for video pictures taken by stationary video camera (for example: security camera) (column 2, line 11-13).

(2) Regarding claim 13:

Lim, Mittal et al., and Gelenbe et al. disclose all the subject matter as described in claim 11 above.

However, Lim, Mittal et al., and Gelenbe et al. do not disclose the receiving of the data produced by the feature extraction program from a remote location as recited in claim 13.

Belkin et al. teaches a method and system for transferring live video pictures from a video camera to a remote video displayer via conventional telephone line, where the remote video-display receives a data image (column 2, line 60-61)

One of ordinary skill in the art would have clearly recognized the receiving of the data image by the remote location (column 2, line 58-61), (the examiner interpreted the remote location as the remote video-display). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Belkin et al, where transferring the data to the remote location, in the system of Lim, because such feature is useful for transferring live video data through low-bandwidth communication lines (column 2, line 21-23) and especially useful for video pictures taken by stationary video camera (for example: security camera) (column 2, line 11-13).

14. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mittal et al. in view of Kamitani et al. (US 6,327,385).

Mittal et al. disclose a feature mask generating logic that classifies pixels as feature pixels and background pixels based on pixels locations and intensities (paragraph [0019], line 9-13).

However, Mittal et al. does not disclose the system of storing a scanned image, and determining a feature position and size within a scanned image as recited in claim 14.

Kamitani et al. teaches a character segmentation device and character segmentation system, where storing a scanned image (column 2, line 2-4), and determining a feature position (column 2, line 24-26) and size within a scanned image (column 7, line 22-24).

One of ordinary skill in the art would have clearly recognized the storing of the scanned image (column 2, line 28-30), and determining a feature position (column 2, line 43-45) and size within a scanned image (column 7, line 19-27). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Kamitani et al., where the scanned image is stored, in the system of Mittal et al., because such feature provides a character segmentation system, which is free from the variation of character contacting stat due to difference in font between the character and realizable by using a small size hardware resources (column 1, line 62-67).

15. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mittal et al., Kamitani et al., as applied to claim 14 above, and further in view of Lim (US-PGPUB 2004/0017579).

(1) Regarding claim 15:

Lim disclose a system for classifying pixels (paragraph [0012], line 4-6), the method comprising:

Initially classifying pixels in the region of interest as either feature pixels or background pixels based on the intensities of the pixels (paragraph [paragraph [0053], line 2-4, and paragraph [0054], line 1-6)

However, Lim does not disclose the computing of probabilities for the pixels that the pixels are feature pixels or background pixels as recited in claim 15.

Mittal et al. teaches a method for scene modeling and change detection, where computing the probability of the pixels to estimate either the pixels are feature or background (paragraph [0019], line 9-13), (the examiner interpreted that the pixels are estimated as feature pixels or background pixels based on the comparison with the threshold)

One of ordinary skill in the art would have clearly recognized the computing of the probability to estimate if the pixels are feature or background (paragraph [0019], line 6-13). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Mittal et al., where computing the probability for the pixels as they are either feature or background, in the system of Lim, because such feature is utilizing the optical flow measurements for capturing and modeling the

dynamic of the scene, and combining the optical flow measurements, the intensities and the probability distribution so as to develop a robust representation of the scene in a higher dimensional space (paragraph [0024], line 8-12).

(2) Regarding claim 16:

Lim further discloses the system, where a feature pixel and background pixels classification is stored in a feature mask (paragraph [0044], line 15-19; and paragraph [0054], line 3), (the examiner interpreted that the history information storage is part of the mask).

(3) Regarding claim 17:

Lim disclose all the subject matter as described in claims 1 and 15 above.

However, Lim does not disclose the system, where determining a higher pixel intensity and lower pixel intensity, and determining an intermediate point between the higher pixel intensity and lower pixel intensity, and classifying pixels intensities greater than or equal to the intermediate point as feature pixels and classifying pixels with pixels intensity less than the intermediate point as background pixels, and iteratively reclassifying pixels based on an intermediate intensity between the mean intensity of feature pixels and the mean intensity of background pixels as recited in claim 17.

Mittal et al. teaches a method for scene modeling and change detection, where the statistical method utilizes optical flow for capturing the dynamic of the scene. Along with optical flow, the intensity of a pixel is considered in an illumination-invariant space (paragraph [0017], line 2-5), and classifying the pixels based on the value of threshold (paragraph [0019], line 11-13), and iteratively reclassifying pixels based on the value of

the threshold (paragraph [0019], line 9-13), (the examiner interpreted that the reclassification is the same concept as classification that was described in claim 1).

One of ordinary skill in the art would have clearly recognized the method, where a higher pixel intensity and lower pixel intensity, and determining an intermediate point between the higher pixel intensity and lower pixel intensity (paragraph [0017], line 2-5), and classifying pixels intensities greater than or equal to the intermediate point as feature pixels and classifying pixels with pixels intensity less than the intermediate point as background pixels (paragraph [0019], line 11-13), and iteratively reclassifying pixels based on an intermediate intensity between the mean intensity of feature pixels and the mean intensity of background pixels (paragraph [0019], line 9-13). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Mittal et al., where determining the intensity of pixel, in the system of Lim, because in such feature the uncertainties in the measurements are evaluated and utilized to develop a robust representation of the scene in a higher dimensional space. Such representation can be built efficiently in a nonparametric manner within a window of past observation. A new observation can be then be compared with this representation in order to detect changes (paragraph [0017], line 8-13).

16. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mittal et al., Kamitani et al., and Lim, as applied to claim 15 above, and further in view of Bow et al. (STIC), (Pattern recognition and image preprocessing [electronic resource]).

(1) Regarding claim 18:

Lim and Mittal et al. disclose all the subject matter as described in claim 1 above.

However, Lim and Mittal et al. do not disclose the system, where classifying the pixel as feature when P(F/I,x)>=P(B/I,x); until a maximum number of iterations are performed as recited in claim 18.

Bow, sing-Tze teaches Pattern recognition and image preprocessing, where using Bayes discriminant function for given probability function that the state nature is a pattern belonging to certain class (the examiner interpreted that P(wi/x) has the same concept as P(F/I,x) and P(B/I,x)) (Page 85, line 16-22). Also classifying a pixel as a feature pixel when {P(x/wk)P(wk)> P(x/wi)P(wi)} (Page 87, line 21-24), (the examiner interpreted that P(F/I,x)= P(x/wk)P(wk), and P(B/I,x)= P(x/wi)P(wi)), until a maximum number of iterations are performed (Page 88, line 7-10).

One of ordinary skill in the art would have clearly recognized the method, where classifying a pixel as a feature pixel when (Page 87, line 21-24), (the examiner interpreted that P(F/I,x)= P(x/wk)P(wk), and P(B/I,x)= P(x/wi)P(wi)), until a maximum number of iterations are performed (Page 88, line 7-10). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Bow, sing-Tze, where iteratively computing probabilities of pixels, in the system of Lim, because such feature can speed up the processing of an image, it is therefore necessary to explore a way to accurately represent the image with much less amount of data but without losing any important information for the interpretation (Page 10, line 31-35).

(2) Regarding claim 19:

Lim and Mittal et al. disclose all the subject matter as described in claim 6 above.

However, Lim and Mittal et al. do not disclose the system, where the Bayesian posterior probability P(F/I,x) is calculated as: P(F/I,x)=P(F,I,x)/P(I/x)={P(i/x,F)*P(F,x)}/P(I,x)= { P(i/x,F)*P(F/x)}/P(x)}/P(I,x)

and where the Bayesian posterior probability P(B/I,x) is calculated as: P(B/I,x)=P(B,I,x)/P(I/x)={P(i/x,B)*P(B,x)}/P(I,x)= { P(i/x,B)*P(B/x)}/P(x)}/P(I,x). where the pixel is classified as a feature pixel where : P(F/I,x)/ P(B/I,x)>=1 as recited in claim 19.

Bow, sing-Tze teaches Pattern recognition and image preprocessing, where the Baye's discriminant function is written as: P(wi/x)={P(x/wi)*P(wi)}/ P(x) (Page 85, line 16), (the examiner interpreted that P(wi/x) has the same concept as P(F/I,x) and P(B/I,x)), and {P(x/wk)P(wk)> P(x/wi)P(wi)}, where : P(F/I,x)= P(x/wk)P(wk), and P(B/I,x)= P(x/wi)P(wi) (Page 87, line 21-24).

One of ordinary skill in the art would have clearly recognized the method, where the Baye's discriminant function is written as: P(wi/x)={P(x/wi)*P(wi)}/ P(x) (Page 85, line 16), and {P(x/wk)P(wk)> P(x/wi)P(wi)}, where : P(F/I,x)= P(x/wk)P(wk), and P(B/I,x)= P(x/wi)P(wi) (Page 87, line 21-24). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Bow et al., where iteratively computing probabilities of pixels, in the system of Lim, because such feature can speed up the processing of an image, it is therefore necessary to explore a way to accurately represent the image with much less amount of data but without losing any important information for the interpretation (Page 10, line 31-35).

17. Claims 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mittal et al., Kamitani et al., and Lim, and Bow et al. (STIC) as applied to claim 19 above, and further in view of Padilla et al. (US-PGPUB 2003/0233197).

Lim, Mittal et al., and Bow et al. disclose all the subject matter as described in claim 7 above.

However, over Lim, Mittal et al., and Bow et al. do not disclose the system, where Bayesian posterior probabilities are calculated for each channel of a two-channel microarray as recited in claim 20.

Padilla et al. teaches a discrete Bayesian analysis of data, where using microarray to contain a human genes including intensities (paragraph [0312], line 10-13), and a series of channel grooves, or spots are formed on substrate and reagents are selectively flowed through the channels (paragraph [0085], line 15-18).

One of ordinary skill in the art would have clearly recognized the method, where Bayesian posterior probabilities are calculated for each channel of a two-channel microarray (paragraph [0312], line 10-13; and (paragraph [0085], line 15-18). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Padilla et al., where Bayesian posterior probabilities are calculated for each channel of a two-channel microarray, in the system of Lim, because such feature can be used to predict outcomes of other conditions or perturbations or to identify conditions or perturbations, for diagnosis or for other predictive analysis (paragraph [0008], line 11-13), as well as providing an indication of whether a new data

item belongs to a given model of clinically relevant information (paragraph [0009], line 4-5).

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Li (US 6,067,3760) disclose a classification of an image into foreground and background pixels.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amara Abdi whose telephone number is (571) 270-1670. The examiner can normally be reached on Monday through Friday 7:30 Am to 5:00 PM E.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Amara Abdi
05/16/2007.

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